

The Transportation System

Section A Physical Extent

Table 1-1 System Mileage Within the United States (Statute miles)

	1960	1965	1970	1975	1980	1985	1990	1995	1996	1997	1998
Highway ^a	3,545,693	3,689,666	3,730,082	3,838,146	3,859,837	3,863,912	3,866,926	3,912,226	3,919,450	3,944,597	3,948,893
Class I rail ^{b,c}	207,334	199,798	196,479	191,520	164,822	145,764	119,758	108,264	105,779	102,128	100,570
Amtrak ^c	N	N	N	N	24,000	24,000	24,000	24,000	25,000	25,000	22,000
Transit ^d											
Commuter rail ^c	N	N	N	N	N	3,574	4,132	4,160	3,682	4,417	5,172
Heavy rail	N	N	N	N	N	1,293	1,351	1,458	1,478	1,527	1,527
Light rail	N	N	N	N	N	384	483	568	638	659	676
Navigable channels ^e	25,000	25,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000
Oil pipeline ^f	190,944	210,867	218,671	225,889	218,393	213,605	208,752	^R 221,600	^R 177,535	179,873	178,648
Gas pipeline ^g	630,950	767,520	913,267	979,263	1,051,774	1,118,875	1,206,894	1,262,152	1,276,315	1,251,198	1,279,714

KEY: N = data do not exist; R = revised

^a All public road and street mileage. For years prior to 1980, some miles of nonpublic roadways are included. No consistent data on private road mileage are available. Includes District of Columbia. Beginning in 1996, mileage data for Puerto Rico are included.

^b Data represent miles of road owned (aggregate length of road, excluding yard tracks, sidings, and parallel lines).

^c Portions of Class I freight railroads, Amtrak, and commuter rail networks share common trackage. Amtrak data represent miles of track operated.

^d Transit system mileage is measured in directional route-miles. A directional route-mile is the mileage in each direction over which public transportation vehicles travel while in revenue service. Directional route-miles are computed with regard to direction of service, but without regard to the number of traffic lanes or rail tracks existing in the right-of-way.

^e The St. Lawrence Seaway is not included in this number because 3 of the 5 subsections are solely in Canadian waters, and the others are in international boundary waters. Of the 26,000 miles of navigable waterways, 10,867 miles are commercially significant shallow-draft inland waterways subject to fuel taxes.

^f Includes trunk and gathering lines for crude-oil pipeline.

^g Excludes service pipelines. Data not adjusted to common diameter equivalent. Mileage as of the end of each year. Includes field and gathering, transmission, and distribution mains. See table 1-8 for a more detailed breakout of oil and gas pipeline mileage.

NOTES: Total highway mileage in this table will not match that in tables 1-3 and 1-4 because of a change in the way the U.S. Department of Transportation, Federal Highway Administration (FHWA) creates mileage-based tables derived from the Highway Performance Monitoring System, beginning with the 1997 issue of FHWA's *Highway Statistics*. See the accuracy statement in the appendix for additional details.

SOURCES:

Highway: 1960-95: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: Annual issues), table HM-212.

1996-98: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table HM-12.

Class I rail: 1960-98: Association of American Railroads, *Railroad Facts* (Washington, DC: 1998), p. 44.

Amtrak: 1980: Amtrak, Corporate Planning and Development, personal communication (Washington, DC).

1985-98: Amtrak, Corporate Planning and Development, *Amtrak Annual Report*, Statistical Appendix (Washington, DC: Annual issues).

Transit: U.S. Department of Transportation, Federal Transit Administration, *National Transit Database* (Washington, DC: Annual issues), table 18 (1996-1997) and table 19 (for 1998) and similar tables in earlier editions.

Navigable channels: 1960-96: U.S. Army Corps of Engineers, Ohio River Division, Huntington District, *Ohio River Navigation System Report, 1996, Commerce on the Ohio River and its Tributaries* (Fort Belvoir, VA: 1996), p. 2.

1997-1998: Waterborne Commerce Statistics Center Databases, personal communication, June 2000.

Oil pipeline: 1960-98: Eno Transportation Foundation, Inc., *Transportation in America, 1998* (Washington, DC: 1999), p. 64.

Gas pipeline: 1960-98: American Gas Association, *Gas Facts* (Arlington, VA: Annual issues), table 5-2 and similar tables in earlier editions.

Table 1-2 Number of Air Carriers, Railroads, Interstate Motor Carriers, Marine Vessel Operators, and Pipeline Operators

	1960	1965	1970	1975	1980	1985	1990	1995	1996	1997	1998	1999
Air Carriers^a	N	N	39	36	63	102	70	96	96	96	96	94
Major Air Carriers	N	N	N	N	N	13	14	11	12	13	13	13
Other Air Carriers	N	N	N	N	N	89	56	85	84	83	83	81
Railroads	607	568	517	477	480	500	530	541	553	550	559	555
Class I Railroads	106	76	71	73	39	25	14	11	10	9	9	9
Other Railroads	501	492	446	404	441	^f 475	516	530	543	541	550	546
Interstate Motor Carriers^b	e	e	e	e	U	U	216,000	346,000	379,000	417,000	477,486	517,297
Marine Vessel Operators^c	U	U	U	U	U	U	U	2,519	2,505	2,494	2,534	2,502
Pipeline Operators^d	N	N	1,123	1,682	2,243	2,204	2,212	2,378	2,338	2,282	2,225	2,196
Hazardous Liquid	N	N	N	N	N	^f 222	187	209	215	217	225	237
Natural Gas Transmission	N	N	420	432	474	724	866	974	970	954	880	850
Natural Gas Distribution	N	N	938	^g 1,500	^g 1,932	1,485	1,382	1,444	1,397	1,363	1,366	1,351

KEY: N = data do not exist; U = data are not available

^a Carrier groups are categorized based on their annual operating revenues as major, national, large regional, and medium regional. The thresholds were last adjusted July 1, 1999, and the threshold for major air carriers is currently \$1 billion. The other air carrier category contains all national, large regional, and medium regional air carriers.

^b Figures are for the fiscal year, October through September.

^c The printed source materials do not contain totals for the number of operators and data files from which the figures can be determined are not available prior to 1993.

^d There is some overlap among the operators for the pipeline modes so the total number of pipeline operators is lower than the sum for the the three pipeline modes.

^e Prior to 1980, the source of motor carrier data was the Interstate Commerce Commission (ICC), which was abolished on Jan. 1, 1996. (Certain functions were transferred to the Surface Transportation Board and the Department of Transportation.) The system used by ICC to collect motor carrier data differs significantly from that used by the Federal Motor Carrier Safety Administration in its Motor Carrier Management Information System (MSMIS), which began operations in 1980. The MCMIS is updated weekly, but archive versions are not retained. Because of differences between the two systems, data are not comparable and thus are not included here.

^f This value is for 1986. The number of hazardous liquid pipeline operators is not available for prior years.

^g Includes master meter and mobile home park natural gas distribution operators. A master meter system is a pipeline system for distributing gas within, but not limited to, a definable area, such as a mobile home park, housing project, or apartment complex, where the operator purchases metered gas from an outside source for resale through a gas distribution

pipeline system. The gas distribution pipeline system supplies the ultimate consumer who either purchases the gas directly through a meter or by other means, such as by rents.

SOURCES:

Air carriers: U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, *Air Carrier Financial Statistics Quarterly* (Washington, DC: Fourth quarter issues), "Alphabetical List of Air Carriers by Carrier Group ...".

Railroads: 1999: Association of American Railroads, *Railroad Facts* (Washington, DC: 2000). 1989-1998: Ibid., *Railroad Ten-Year Trends*, Vol. 16 (Washington, DC: 1999), page 10.

1986: Ibid., Vol. 3 (Washington, DC), table I-2.

1960-1985: Ibid., Vol. 2 (Washington, DC), table I-2.

Interstate motor carriers: U.S. Department of Transportation, Federal Motor Carrier Safety Administration, Motor Carrier Management Information System (MCMIS) data, personal communication, Apr. 5, 2000.

Marine vessel operators: 1995-97: U.S. Army, Corps of Engineers, *Waterborne Transportation Lines of the United States, Volume 2, Vessel Company Summary* (New Orleans, LA: Annual issues), source data files obtained by personal communication, Apr. 12, 2000.

1998: Ibid., Internet site: <http://www.wrsc.usace.army.mil/ndc/datavess.htm> as of Apr. 10, 2000.

Pipeline Operators: U.S. Department of Transportation, Office of Pipeline Safety, personal communication, Jul. 28, 2000.

Table 1-3

Number of U.S. Airports^a

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
TOTAL airports	15,161	16,319	17,490	17,581	17,846	18,317	18,343	18,224	18,292	18,345	18,770	19,098
Public use, total	4,814	5,858	5,589	5,551	5,545	5,538	5,474	5,415	5,389	5,357	5,352	5,354
% with lighted runways	66.2	68.1	71.4	71.9	72.3	72.8	73.5	74.3	74.5	74.6	74.8	76.2
% with paved runways	72.3	66.7	70.7	71.5	71.6	72.2	72.9	73.3	73.7	74.0	74.2	74.2
Private use, total	10,347	10,461	11,901	12,030	12,301	12,779	12,869	12,809	12,903	12,988	13,418	13,774
% with lighted runways	15.2	9.1	7.0	6.8	6.6	6.3	6.2	6.4	6.4	6.4	6.3	6.7
% with paved runways	13.3	17.4	31.5	32.0	32.2	32.7	33.0	33.0	32.9	33.0	33.2	31.8
TOTAL airports	15,161	16,319	17,490	17,581	17,846	18,317	18,343	18,224	18,292	18,345	18,770	19,098
Certificated^b, total	730	700	680	669	664	670	672	667	671	660	660	655
Civil	N	N	N	N	N	N	577	572	577	566	566	565
Civil-military	N	N	N	N	N	N	95	95	94	94	94	90
General aviation, total	14,431	15,619	16,810	16,912	17,182	17,637	17,671	17,557	17,621	17,685	18,110	18,443

^a Includes civil and joint-use civil-military airports, heliports, STOLports, and seaplane bases in the United States and its territories.

^b Certificated airports serve air-carrier operations with aircraft seating more than 30 passengers.

SOURCE: U.S. Department of Transportation, Federal Aviation Administration, *Administrator's Fact Book* (Washington, DC: Annual issues), Internet site <http://www.ama500.jccbi.gov> as of May 20, 2000.

KEY: N = data do not exist

Table 1-4 Public Road and Street Mileage in the United States by Type of Surface^a (Millions of miles)

	1960	1965	1970	1975	1980	1985	1990	1995	1996	1997	1998
Paved^b											
Low and intermediate type	0.672	0.758	0.897	0.967	1.041	1.015	1.025	1.062	1.066	N ^d	N ^d
High-type	0.558	0.696	0.762	0.888	1.032	1.099	1.230	1.316	1.314	N ^d	N ^d
Total	1.230	1.455	1.658	1.855	2.073	2.114	2.255	2.378	2.380	2.410	2.420
Unpaved^c total	2.315	2.235	2.072	1.983	1.787	1.750	1.612	1.534	1.554	1.548	1.529
TOTAL paved and unpaved	3.546	3.690	3.730	3.838	3.860	3.864	3.867	3.912	3.934	3.958	3.949

^a 1960-95 data include the 50 states and the District of Columbia; 1996-98 data include the 50 states, District of Columbia, and Puerto Rico.

^b Paved mileage includes the following categories: low type (an earth, gravel, or stone roadway that has a bituminous surface course less than 1" thick); intermediate type (a mixed bituminous or bituminous penetration roadway on a flexible base having a combined surface and base thickness of less than 7"); high-type flexible (a mixed bituminous or bituminous penetration roadway on a flexible base having a combined surface and base thickness of 7" or more; high-type composite (a mixed bituminous or bituminous penetration roadway of more than 1" compacted material on a rigid base with a combined surface and base thickness of 7" or more; high-type rigid (Portland cement concrete roadway with or without a bituminous wearing surface of less than 1").

^c Unpaved mileage includes the following categories: unimproved roadways using the natural surface and maintained to permit passability; graded and drained roadways of natural earth aligned and graded to permit reasonably convenient use by motor vehicles, and that have adequate drainage to prevent serious impairment of the road by normal surface water--surface may be stabilized; and soil, gravel, or stone, a graded and drained road with a surface of mixed soil, gravel, crushed stone, slag, shell, etc.--surface may be stabilized. The percentage of unpaved roads that are nonsurfaced, dropped from approximately 42% in the 1960s to about 37% in the first half of the 1970s, to about 32% in 1980 and has held at about 22% since 1985.

^d Source no longer sorts data into these particular categories.

NOTES: A public road is any road under the jurisdiction of and maintained by a public authority (federal, state, county, town, or township, local government or instrumentality

thereof) and open to public travel. No consistent data on private road mileage are available (although for years prior to 1980, some nonpublic roadway mileage are included). Some years contain U.S. Department of Transportation, Federal Highway Administration (FHWA) estimates for some states.

Numbers may not add due to rounding.

Beginning with the 1997 issue of *Highway Statistics*, FHWA has instituted a new method for creating mileage based tables derived from the Highway Performance Monitoring System (HPMS) data. Previously, adjustments to tables developed from sampled data were made using areawide mileage data provided by the States; these adjustments are now made using the universe totals from the HPMS data set. In addition, rounding and expansion related differences were spread across table cells so that all table-to-table mileage totals on related tables matched precisely. While this cosmetic step makes all functional system table totals match, an unintended result is that the tables are not reproducible from the data set by any other users. As a result, FHWA made a decision to discontinue the spreading process, and users may note minor differences in table-to-table mileage totals. For record purposes, FHWA considers the mileage totals from table HM-20, Public Road Length, Miles by Functional System in *Highway Statistics* to be the controlling totals should a single value be required. Thus, total mileage in this table does not match that in tables 1-1 and 1-4.

SOURCES: 1960-95: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table HM-212.

1996-98: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table HM-12.

KEY: N = data do not exist

Table 1-5

U.S. Public Road and Street Mileage by Functional System^a

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Urban mileage										
Principal arterials, Interstates	11,527	11,602	12,516	12,877	13,126	13,164	13,217	13,247	13,312	13,343
Principal arterials, other freeways and expressways	7,668	7,709	8,491	8,841	8,994	8,970	9,027	9,063	9,127	9,125
Principal arterials, other	51,968	52,515	51,900	52,708	53,110	52,796	52,983	53,223	53,132	53,206
Minor arterials	74,659	74,795	80,815	86,821	87,857	88,510	89,020	89,185	89,496	89,399
Collectors	78,254	77,102	82,784	84,854	86,089	87,331	87,790	88,049	88,071	88,008
Local	520,568	526,139	548,560	559,776	564,609	568,935	574,728	583,973	588,504	592,978
Total	744,644	749,862	785,066	805,877	813,785	819,706	826,765	836,740	841,642	846,059
Rural mileage										
Principal arterials, Interstates	33,547	33,677	32,951	32,631	32,457	32,580	32,820	32,817	32,813	32,974
Principal arterials, other	83,802	86,747	94,947	96,770	97,175	97,948	98,131	98,257	98,852	98,856
Minor arterials	144,774	141,795	137,685	137,577	138,120	137,151	137,359	137,497	137,308	137,463
Major collectors	436,352	436,746	434,072	432,222	431,115	431,712	432,117	432,714	432,408	432,954
Minor collectors	293,922	293,511	284,504	282,182	282,011	274,081	273,198	272,362	272,140	271,690
Local	2,129,885	2,141,582	2,131,856	2,117,952	2,111,932	2,119,048	2,119,262	2,135,485	2,091,127	2,097,244
Total	3,122,282	3,134,058	3,116,015	3,099,334	3,092,810	3,092,520	3,092,887	3,109,132	3,064,648	3,071,181
TOTAL urban and rural mileage										
	3,866,926	3,883,920	3,901,081	3,905,211	3,906,595	3,912,226	3,919,652	3,945,872	3,906,290	3,917,240

^a Includes the 50 states and the District of Columbia. When states did not submit reports, data were estimated by the U.S. Department of Transportation, Federal Highway Administration.

NOTES: A public road is any road under the ownership of and maintained by a public authority (federal, state, county, town, or township, local government, or instrumentality thereof) and open to public travel. No consistent data on private road mileage are available. For more detailed information, including breakouts of mileage by ownership and type of surface, see the source document.

SOURCES: 1990-95: U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics Summary to 1995*, FHWA-PL-97-009 (Washington, DC: July 1997), table HM-220.

1996-99: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table HM-20.

Table 1-6 Estimated U.S. Roadway Lane-Miles by Functional System^a

	1980	1985	1990	1995	1996	1997 ^R	1998 ^R	1999
Urban								
Interstates	48,458	57,295	62,214	71,377	71,790	^R 72,966	73,729	74,038
Other arterials	333,673	371,649	399,376	445,828	449,480	^R 455,872	456,333	452,627
Collectors	145,128	162,377	167,770	185,032	186,923	^R 190,153	188,852	187,612
Local	867,986	951,018	1,041,136	1,137,870	1,149,456	^R 1,178,928	1,188,015	1,197,026
Total	1,395,245	1,542,339	1,670,496	1,840,107	1,857,649	^R1,897,919	1,906,929	1,911,303
Rural								
Interstates	130,980	131,907	135,871	131,916	132,963	^R 133,165	133,640	134,611
Other arterials	507,098	510,005	517,342	530,706	532,856	^R 537,870	538,875	540,208
Collectors ^a	1,431,267	1,466,789	1,467,602	1,417,428	1,416,662	^R 1,421,568	1,418,733	1,416,962
Local	4,457,584	4,366,954	4,259,770	4,238,096	4,238,524	^R 4,282,216	4,193,555	4,205,960
Total	6,526,929	6,475,655	6,380,585	6,318,146	6,321,005	^R6,375,228	6,284,803	6,297,741

^a Includes the 50 States, the District of Columbia, and Puerto Rico

^b Includes minor and major collectors.

NOTE: In estimating rural and urban lane mileage, the U.S. Department of Transportation, Federal Highway Administration assumed that rural minor collectors and urban/rural local roads are two lanes wide.

SOURCES: 1980-95: U.S. Department of Transportation, Federal Highway Administration, Office of Highway Information Management, table HM-260 (unpublished).

1996: Ibid., *Highway Statistics* (Washington, DC: Annual issues), table HM-60.

1997-99: Ibid., Internet site www.fhwa.dot.gov/ohim.ohimstat.htm, as of Nov. 15, and Dec. 8, 2000.

KEY: R = revised

Table 1-7 Number of Stations Served by Amtrak and Rail Transit, Fiscal Year

	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Amtrak	503	516	523	524	535	540	530	542	516	508	510
Rail transit	1,895	2,169	2,192	2,240	2,286	2,376	2,382	2,587	2,391	2,524	U

NOTE: Rail transit is sum of commuter rail, heavy rail, and light rail. In several large urban areas, Amtrak and commuter rail stations are shared.

SOURCES:

Amtrak: Amtrak, *Amtrak Annual Report*, Statistical Appendix (Washington, DC: Annual issues).

Rail transit: U.S. Department of Transportation, Federal Transit Administration, National Transit Database (Washington, DC: Annual issues), table 19 (for 1999 issue) and similar tables in earlier editions.

KEY: U = data are not available

Table 1-8

U.S. Oil and Gas Pipeline Mileage

	1960	1965	1970	1975	1980	1985	1990	1991
Oil pipeline								
Crude lines ^a	141,085	149,424	146,275	145,679	129,831	117,812	118,805	115,860
Product lines	49,859	61,443	72,396	80,210	88,562	95,793	89,947	87,968
Total	190,944	210,867	218,671	225,889	218,393	213,605	208,752	203,828
Gas pipeline^b								
Distribution mains	391,400	494,500	594,800	648,200	701,800	753,400	837,300	857,500
Transmission pipelines ^c	183,700	211,300	252,200	262,600	266,500	271,200	280,100	281,600
Field and gathering lines	55,800	61,700	66,300	68,500	83,500	94,300	89,500	86,300
Total	630,950	767,520	913,267	979,263	1,051,774	1,118,875	1,206,894	1,225,358
	1992	1993	1994	1995	1996	1997	1998	
Oil pipeline								
Crude lines ^a	^R 110,651	^R 107,246	^R 103,277	^R 129,423	^R 92,610	91,523	87,663	
Product lines	^R 85,894	^R 86,734	^R 87,073	^R 92,177	^R 84,925	88,350	90,985	
Total	^R196,545	^R193,980	^R190,350	^R221,600	^R177,535	179,873	178,648	
Gas pipeline^b								
Distribution mains	883,200	908,300	919,300	936,800	959,500	^R 957,100	980,800	
Transmission pipelines ^c	284,500	269,600	268,300	263,900	259,300	^R 251,100	253,900	
Field and gathering lines	86,200	73,100	70,400	60,400	57,500	^R 43,000	45,000	
Total	1,253,924	1,251,095	1,257,971	1,261,100	1,276,315	^R1,251,200	1,279,700	

^a Includes trunk and gathering lines.

^b Excludes service pipe. Data are not adjusted to common diameter equivalent. Mileage as of the end of each year.

^c After 1975, includes 5,000-6,200 miles of underground storage pipe.

NOTE: Numbers may not add to totals due to rounding because the source provides exact numbers for totals, but rounded mileage for subtotals.

SOURCES:

Oil pipeline: 1960-98: Eno Transportation Foundation, Inc., *Transportation in America, 1999* (Washington, DC: 1999), p. 64.

Gas pipeline: 1960-98: American Gas Association, *Gas Facts* (Arlington, VA: Annual issues), tables 5-1 and 5-3, and similar tables in earlier editions.

KEY: R = revised